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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,814	03/27/2001	Donald G. Newberg	CM04753H	9970
22917	7590	06/10/2005	EXAMINER	
MOTOROLA, INC. 1303 EAST ALGONQUIN ROAD IL01/3RD SCHAUMBURG, IL 60196			SAM, PHIRIN	
			ART UNIT	PAPER NUMBER
			2661	

DATE MAILED: 06/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,814

Applicant(s)

NEWBERG ET AL.

Examiner

Phirin Sam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12-20 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2-8, 12, 13, 15-18, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,252,910 (hereinafter referred as “West”).

West discloses the invention (**amended claim 1**) as claimed including in a communication system adapted for communicating information in one or more time slots within a predetermined bandwidth, a method comprising:

- (a) communicating information, by at least one communication unit, in selected one or more sub-slots (see Figs. 4a and 4b, col. 6, lines 60-67);
- (b) wherein the one or more time slots is divided into multiple sub-channels (see Fig. 3, col. 6, lines 14-16);
- (c) wherein each sub-channel of the multiple sub-channels is non-overlapping in frequency (see Fig. 3, col. 5, lines 44-50);
- (d) wherein each sub-channel of the multiple channels is divided into the one or more sub-slot that is non-overlapping in time (see Fig. 3, col. 6, lines 14-16 and col. 5, lines 47-50).

Regarding claim 2, West discloses transmitting information in a first one of the sub-slots by a first communication unit (see Fig. 4, col. 6, lines 48-51, 60-67, wherein base station

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allocates or assigns the sub-channel or time slot for each terminal unit (either called first or second terminal units)); transmitting information in a second one of the sub-slots by a second communication unit (see Fig. 4, col. 6, lines 48-51, 60-67, wherein the base station allocates or assigns the sub-channel or time slot for each terminal unit (either called first or second terminal units)).

Regarding claim 3, West discloses transmitting, by the at least one communication unit, information in a plurality of sub-slots (see Fig. 3, wherein if there are more data information for each terminal unit, the base station must obviously allocate or assign more than one sub-slots for that terminal unit).

Regarding claim 4, West discloses the communication unit communicates identical information in each of the plurality of the sub-slots thereby increasing the probability of the information reaching a receiver (see Fig. 3, col. 5, lines 44-63, wherein each sub time slot of course has the information bits identically).

Regarding claim 5, West discloses at least two sub-slots include two sub-slots that are adjacent in frequency (see Fig. 3).

Regarding claim 6, West discloses the predetermined bandwidth is 100 KHz, at least two sub-slots comprising a first and second sub-slot each having a 50 KHz bandwidth (Figs. 2 and 3, col. 5, lines 44-63, col. 6, lines 12-28, wherein West does not exactly disclose each sub-slot has 50KHz. However, it is obvious a design choice).

Regarding claim 7, West discloses at least two sub-slots include three sub-slots that are adjacent in frequency (see Fig. 3).

Regarding claim 8, West discloses the predetermined bandwidth is 150 KHz, at least two sub-slots comprising a first, second and third sub-slot each having a 50 KHz bandwidth (see Fig. 3, col. 5, lines 44-63, and col. 6, lines 12-28, wherein West does not exactly disclose each sub-slot having a 50 KHz bandwidth. However, it is obviously a design choice.

Regarding amended claim 12, West discloses the subject matter the same as amended claim 1.

Regarding claim 15, West discloses the subject matter the same as claim 2.

Regarding claim 16, West discloses the subject matter the same as claim 4.

Regarding claim 17, West discloses the transmitter is selected from the group consisting of wireless radio units, cellular radio/telephones, wireless modems, computer modems, cable modems, satellite transmitters, satellite ground stations and fiber optic repeaters (see Fig. 1a and 1b, col. 3, lines 48-64).

Regarding amended claim 18, West discloses an apparatus for obtaining information sent over a communication channel that is divided into time slots, the apparatus comprising:

- (a) a receiver operable to receive information in one or more sub-slots (see Fig. 9b, element 930, col. 17, lines 58-63);
- (b) wherein the time slots are divided into multiple sub-channels (see Fig. 3, col. 6, and lines 14-16);
- (c) wherein each sub-channel of the multiple sub-channels is non-overlapping in frequency (see Fig. 3, col. 5, lines 44-50);
- (d) wherein each sub-channel of the multiple sub-channels is divided into the sub-slots that is non-overlapping in time (see Fig. 3, col. 6, lines 14-16 and col. 5, lines 47-50).

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Regarding claim 20, West discloses the receiver is adapted to demodulate a multiple sub-channel signal (see Fig. 8f, element 864, col. 19, lines 46-53).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,252,910 (hereinafter referred as "West") in view of US Patent 5,343,499 (hereinafter referred as "Jasper").

Regarding claim 13, West discloses all limitations. On the other hand, West does not disclose a symbol insertion element operable to format the information to fit into the selected one or more of the plurality of sub-slots, yielding formatted information, which is then forwarded to the transmitter. However, Jasper discloses the symbol insertion element (see Fig. 1, element 16, col. 5, lines 10-19). At the time of the invention, it would have been obvious to a person of

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ordinary skill in the art to combine the symbol insertion element teaching by Jasper with West. The motivation for doing so would have been to provide signals for improved AFC control signal generation read on abstract. Therefore, it would have been obvious to combine Jasper and West to obtain the invention as specified in the claim 13.

6. Claims 9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,252,910 (hereinafter referred as “West”) in view of US Patent 5,357,513 (hereinafter referred as “Kay”).

Regarding claims 9 and 14, West discloses all limitations. On the other hand, West does not disclose randomly choosing one or more sub-slots. However, Kay discloses randomly choosing one or more sub-slots (see Fig. 18, col. 15, lines 8-16). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine randomly choosing one or more sub-slots teaching by Kay with West. The motivation for doing so would have been to provide increase the capacity of the system read on column 3, line 27. Therefore, it would have been obvious to combine Kay and West to obtain the invention as specified in the claims 9 and 14.

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,252,910 (hereinafter referred as “West”) in view of US Patent 5,519,730 (hereinafter referred as “Jasper730”) as applied to claim above, and further in view of US Patent 5,343,499 (hereinafter referred as “Jasper499”).

Regarding 19, West does not disclose a demultiplexer for deformatting synchronization and pilot symbols. However, Jasper730 discloses deformatting pilot symbol (see Fig. 6b, element 614, col. 7, lines 23-25). In addition, Jasper730 and West do not disclose deformatting

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synchronization symbol. However, Jasper499 discloses deformatting synchronization symbol (see Fig. 5, element 660, col. 7, lines 11-38).

Therefore, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine deformatting pilot symbol teaching by Jasper730 and deformatting synchronization symbol teaching by Jasper499 with West. The motivation for doing so would have been to provide to fully recover pilot and synchronization symbols at the receiver. Therefore, it would have been obvious to combine Jasper499, Jasper730, and West to obtain the invention as specified in the claim 19.

Allowable Subject Matter

8. Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

9. Applicant's arguments with respect to claims 1-20 filed on January 04, 2005 have been considered but are moot in view of the new ground(s) of rejection.

For proper response to the amended claims, the references, US Patent 5,577,024, US Patent 6,172,971, US Patent 6,370,153, and US Patent 5,946,624 have been replaced with US Patent 6,252,910, US Patent 5,519,730, US Patent 5,357,513, and US Patent 5,343,499.

Therefore, the new ground of rejections are applied as set forth in the Office Action.

Regarding amended claims 1, 12, and 18, applicants argue that Malkamaki does not disclose subdividing slots by both time and frequency. However, West discloses subdividing

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slots by both time and frequency see figure 3, column 5, lines 44-50, and column 6, lines 12-16.

Therefore, the instant claims 1, 12, and 18 anticipate with the reference West.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phirin Sam whose telephone number is (571) 272-3082. The examiner can normally be reached on Mon-Fri, 8:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T. Nguyen can be reached on (571) 272 - 3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully submitted,

Date: June 8, 2005


PHIRIN SAM
PRIMARY EXAMINER